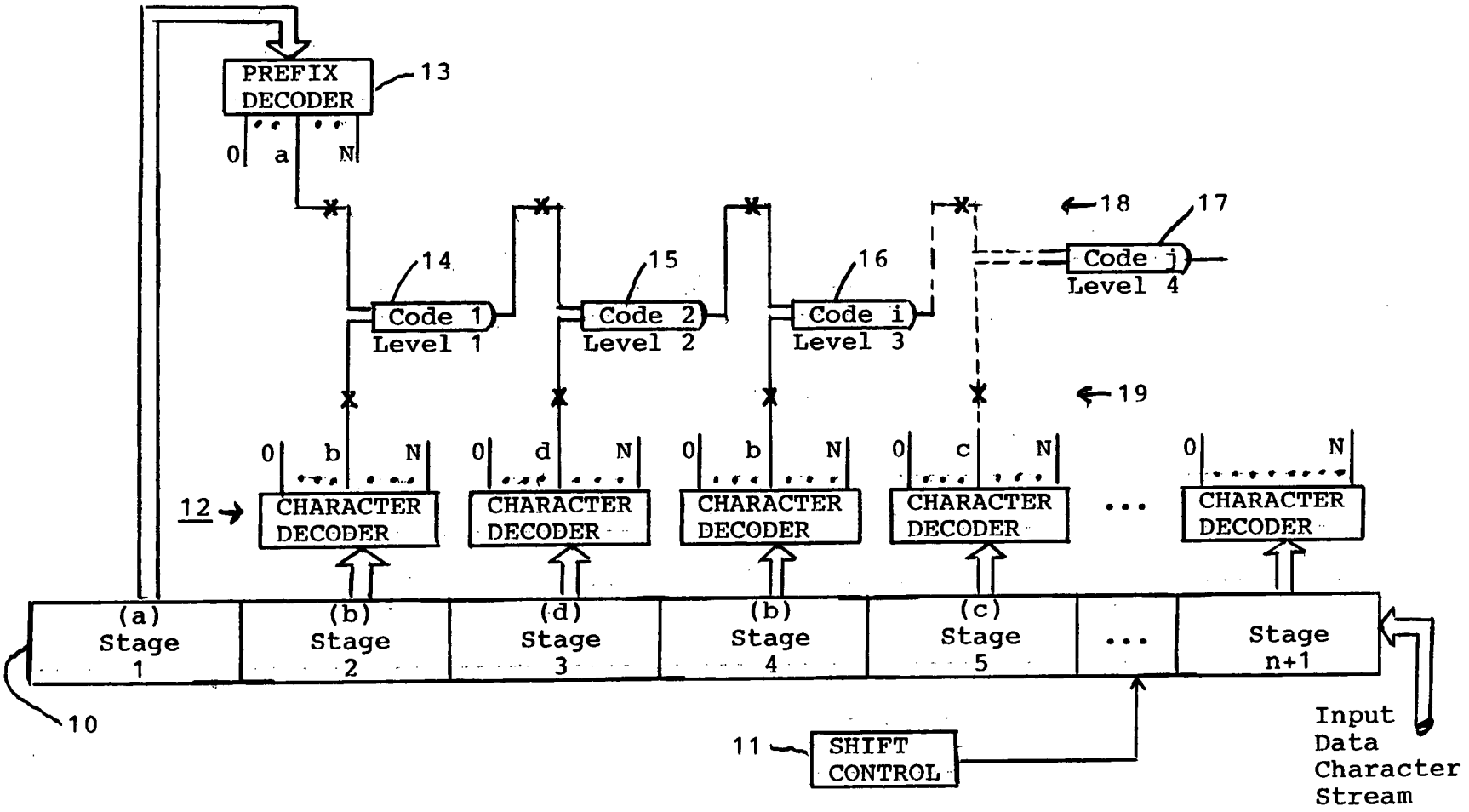

PREFIX DECODER
13
0
a
N
14
15
16
18
17
Code 1
Level 1
Code 2
Level 2
Code i
Level 3
Code j
Level 4
19
0
b
N
0
d
N
0
b
N
0
c
N
0
N
12
CHARACTER DECODER
CHARACTER DECODER
CHARACTER DECODER
CHARACTER DECODER
...
CHARACTER DECODER
(a) Stage 1
(b) Stage 2
(d) Stage 3
(b) Stage 4
(c) Stage 5
...
Stage n+1
10
11
SHIFT CONTROL
Input Data Character Stream

FIGURE 1

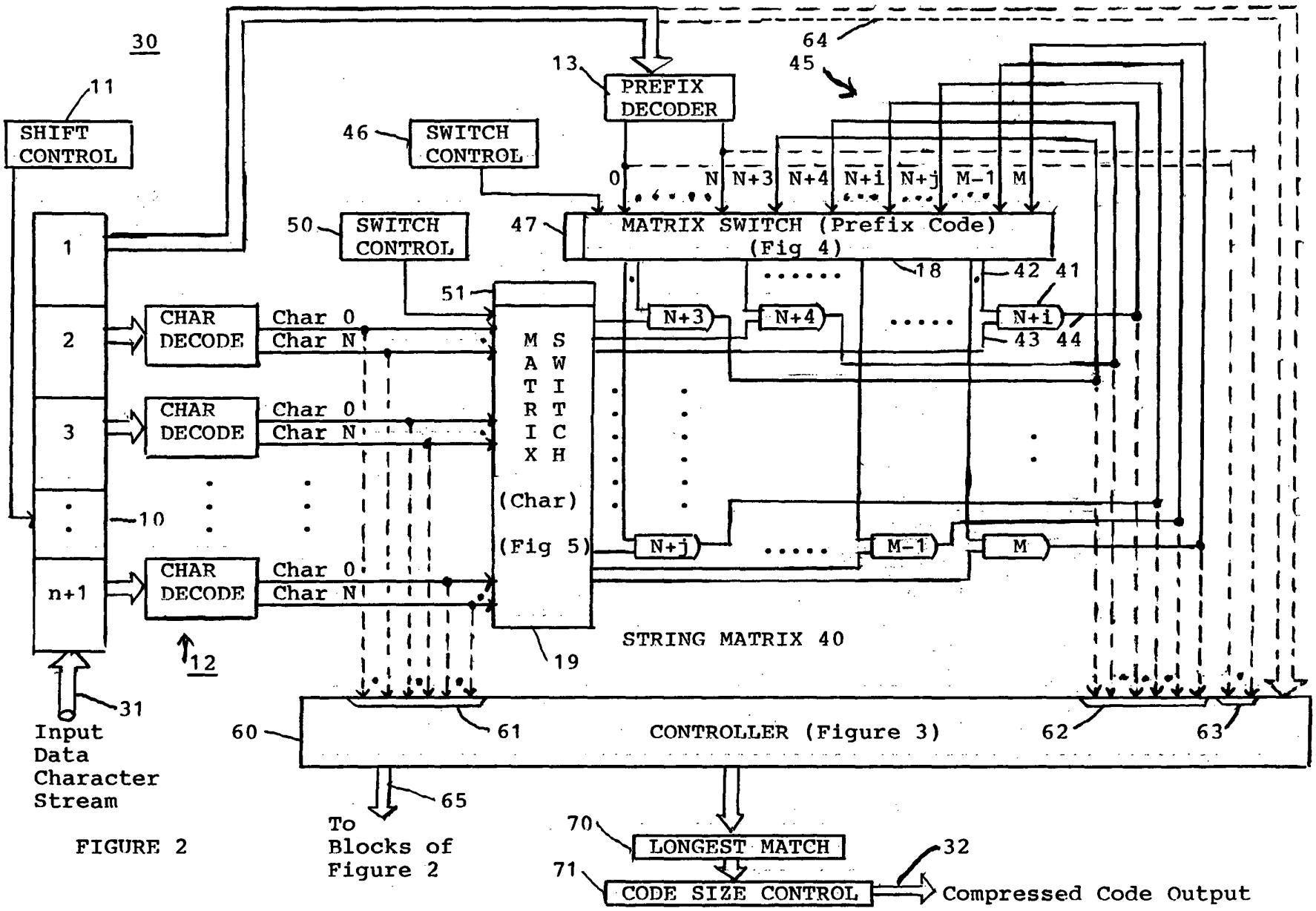

30
11
SHIFT CONTROL
13
PREFIX DECODER
64
45
46
SWITCH CONTROL
0
N
N+3
N+4
N+i
N+j
M-1
M
50
SWITCH CONTROL
47
MATRIX SWITCH (Prefix Code) (Fig 4)
18
42
41
51
1
2
3
n+1
10
CHAR DECODE
Char 0
Char N
M A T R I X (Char) (Fig 5) S W I T C H
43
44
STRING MATRIX 40
19
12
31
Input Data Character Stream
60
61
CONTROLLER (Figure 3)
62
63
65
To Blocks of Figure 2
70
LONGEST MATCH
71
CODE SIZE CONTROL
32
Compressed Code Output

FIGURE 2

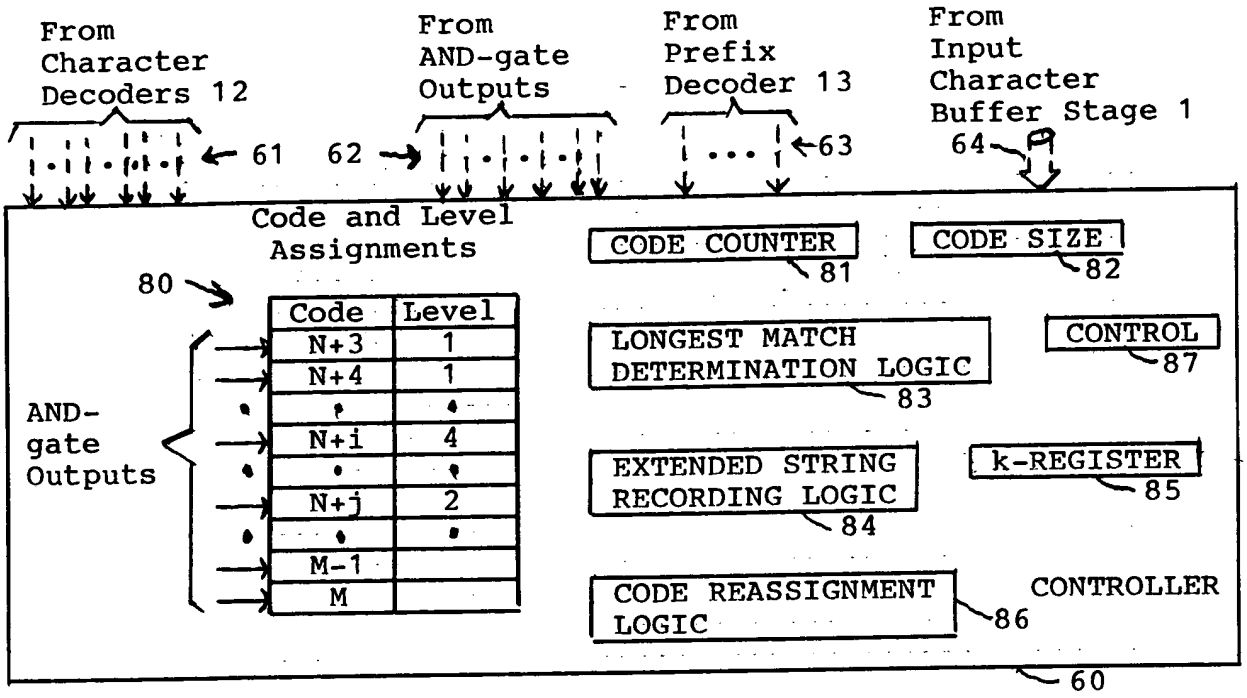


FIGURE 3

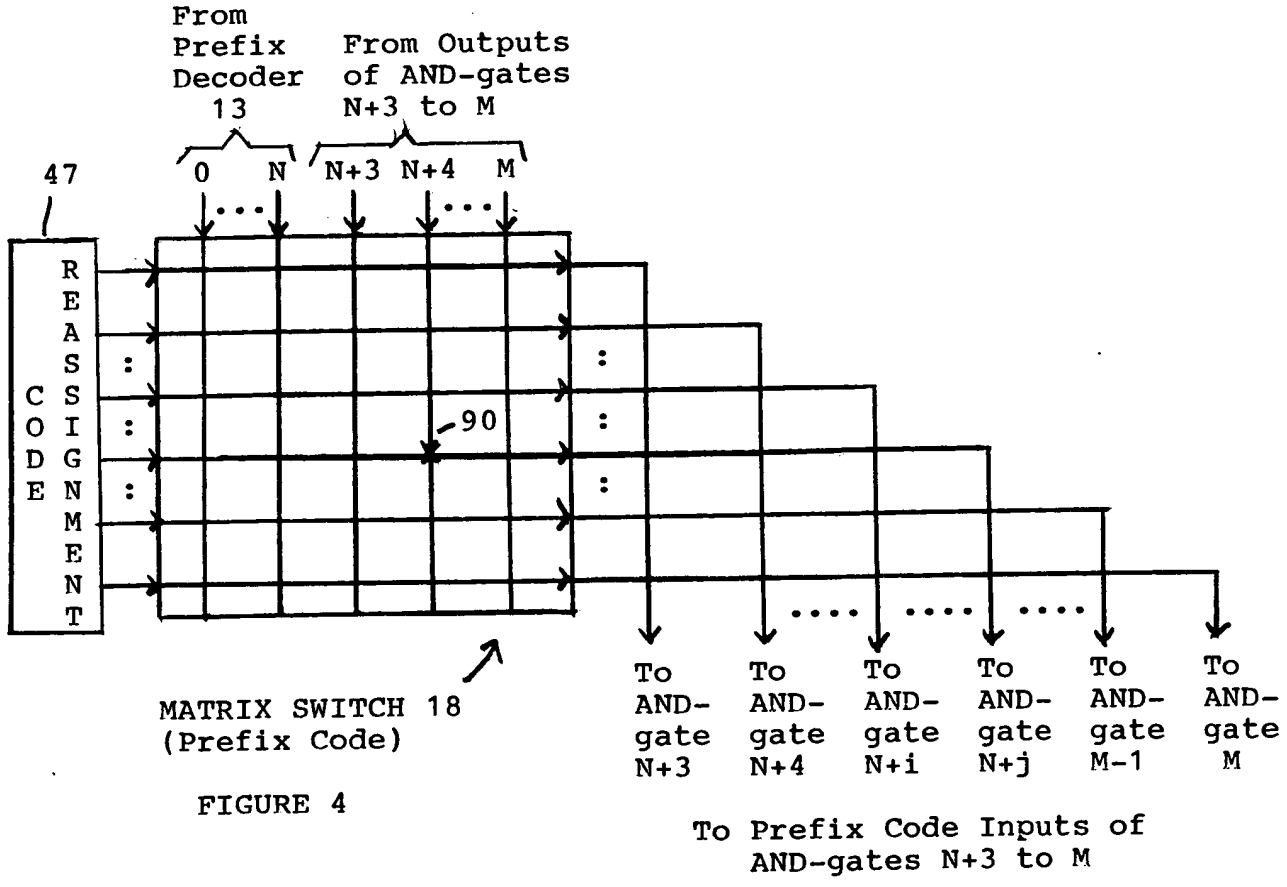


FIGURE 4

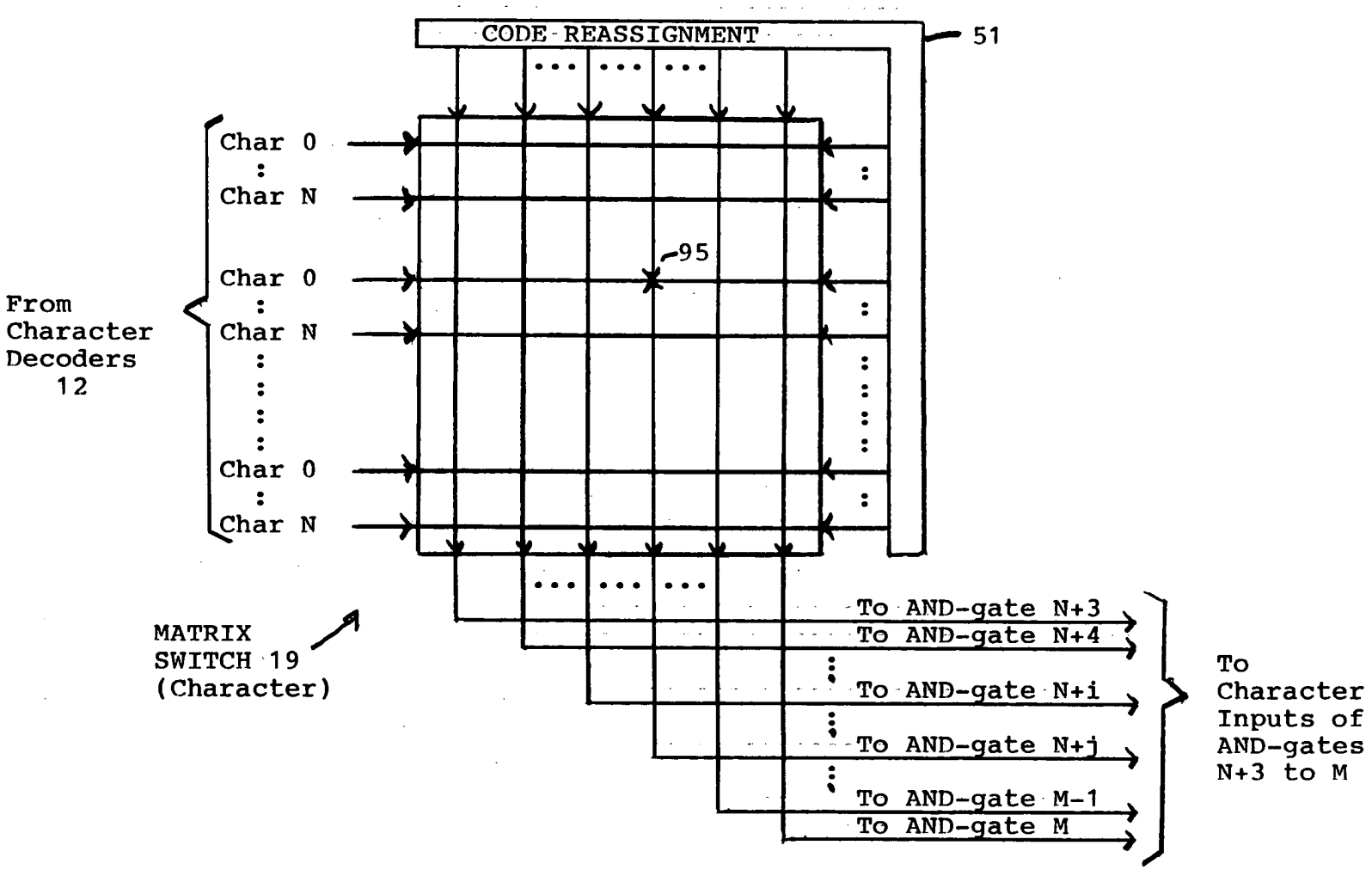

CODE REASSIGNMENT
51
Char 0
Char N
Char 0
Char N
Char 0
Char N
95
From
Character
Decoders
12
MATRIX
SWITCH 19
(Character)
To AND-gate N+3
To AND-gate N+4
To AND-gate N+i
To AND-gate N+j
To AND-gate M-1
To AND-gate M
To
Character
Inputs of
AND-gates
N+3 to M

FIGURE 5

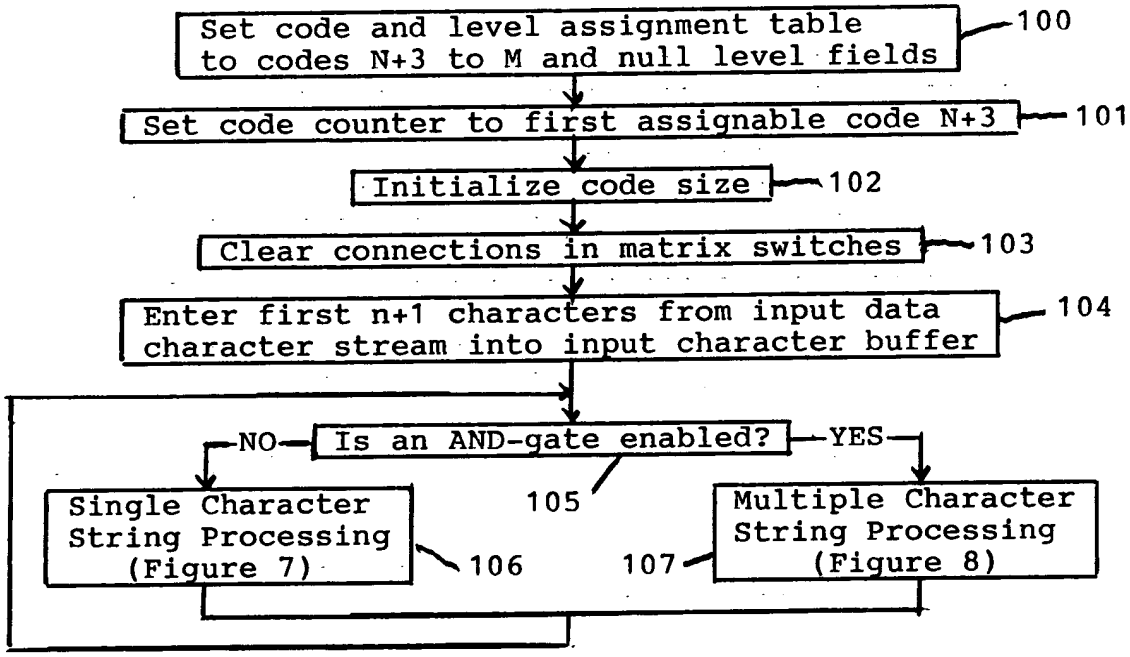
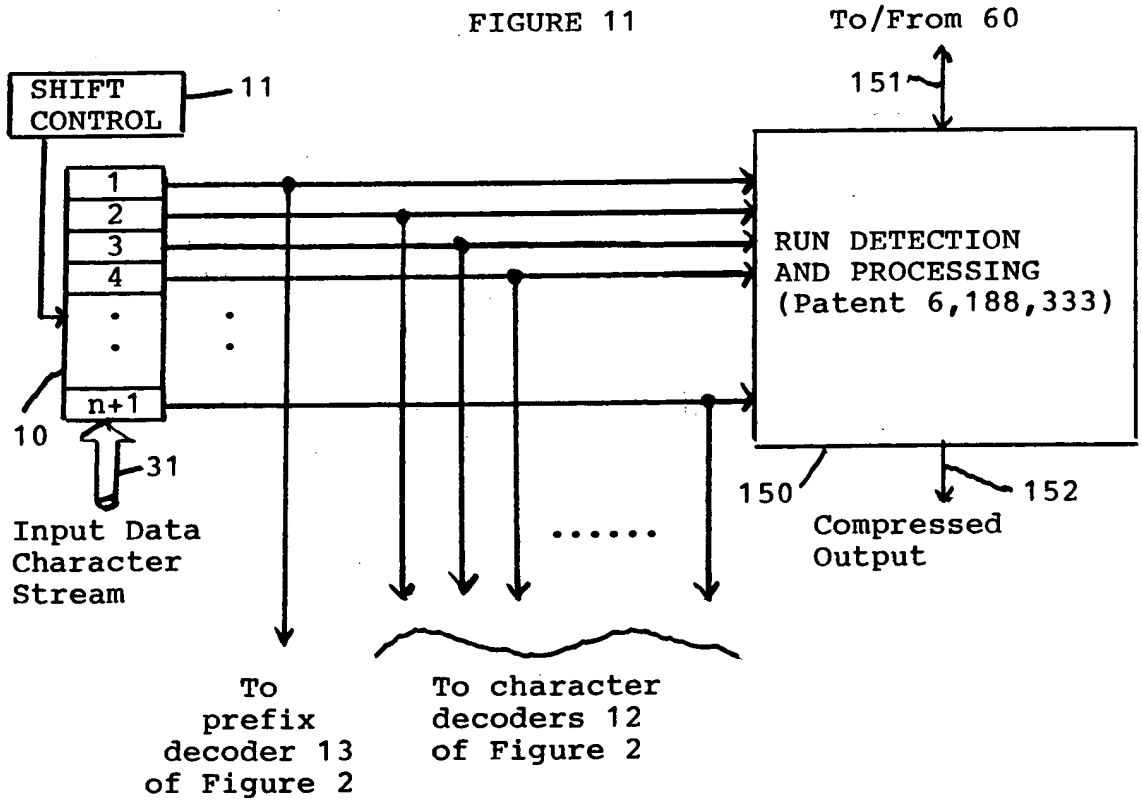
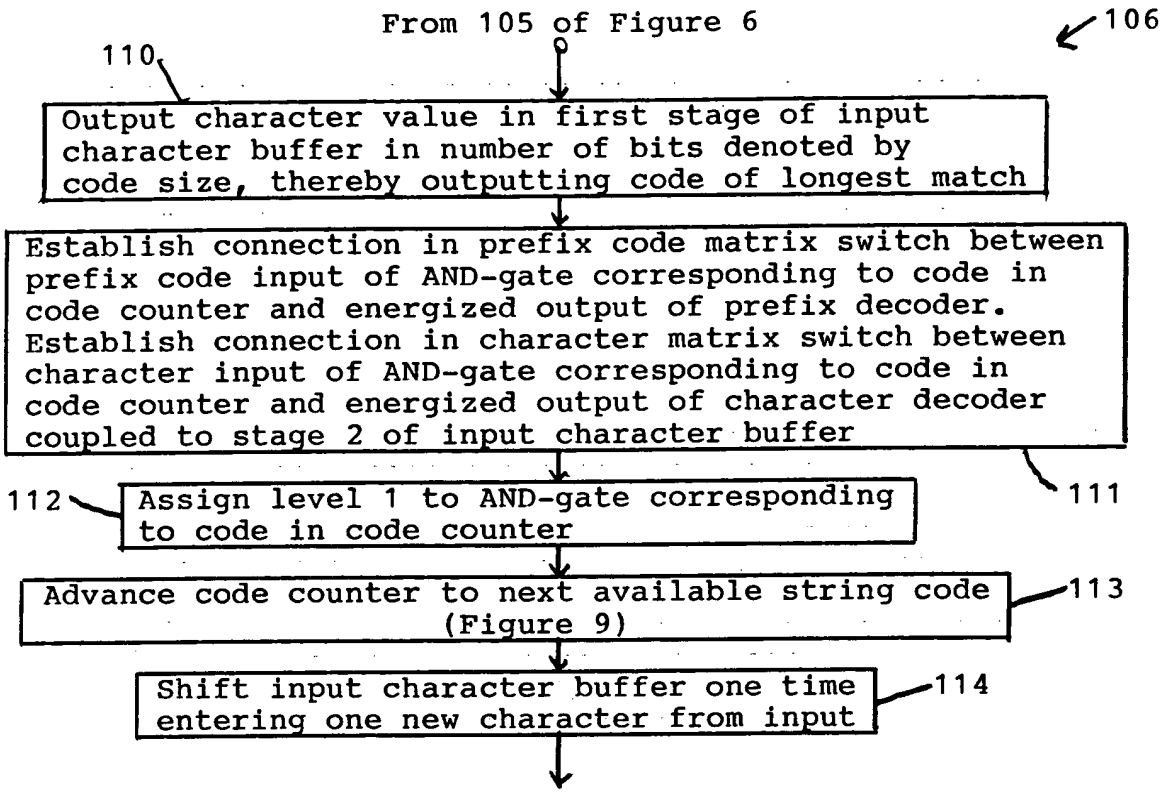


FIGURE 6

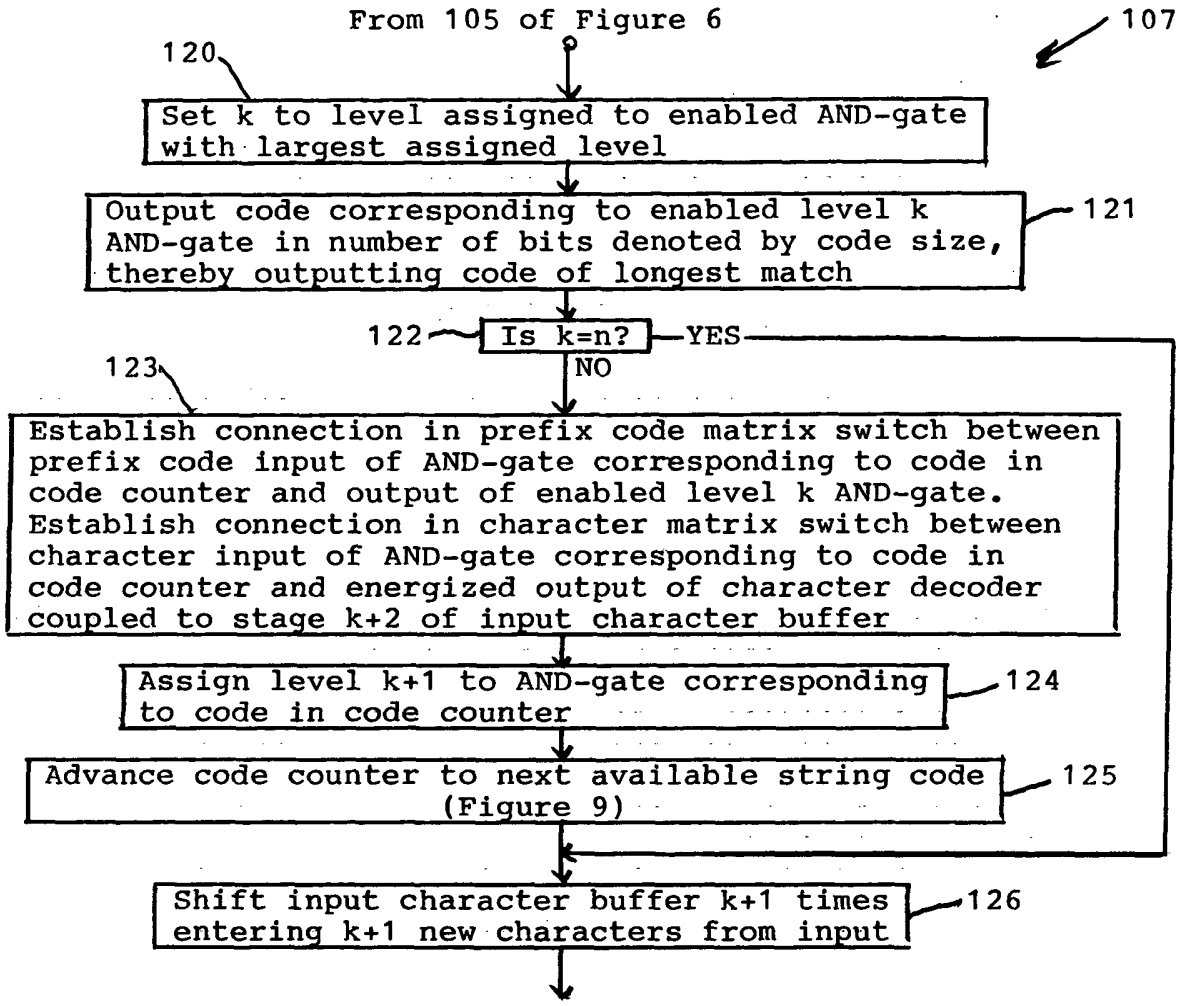
FIGURE 11





Single Character String Processing

FIGURE 7



Multiple Character String Processing

FIGURE 8

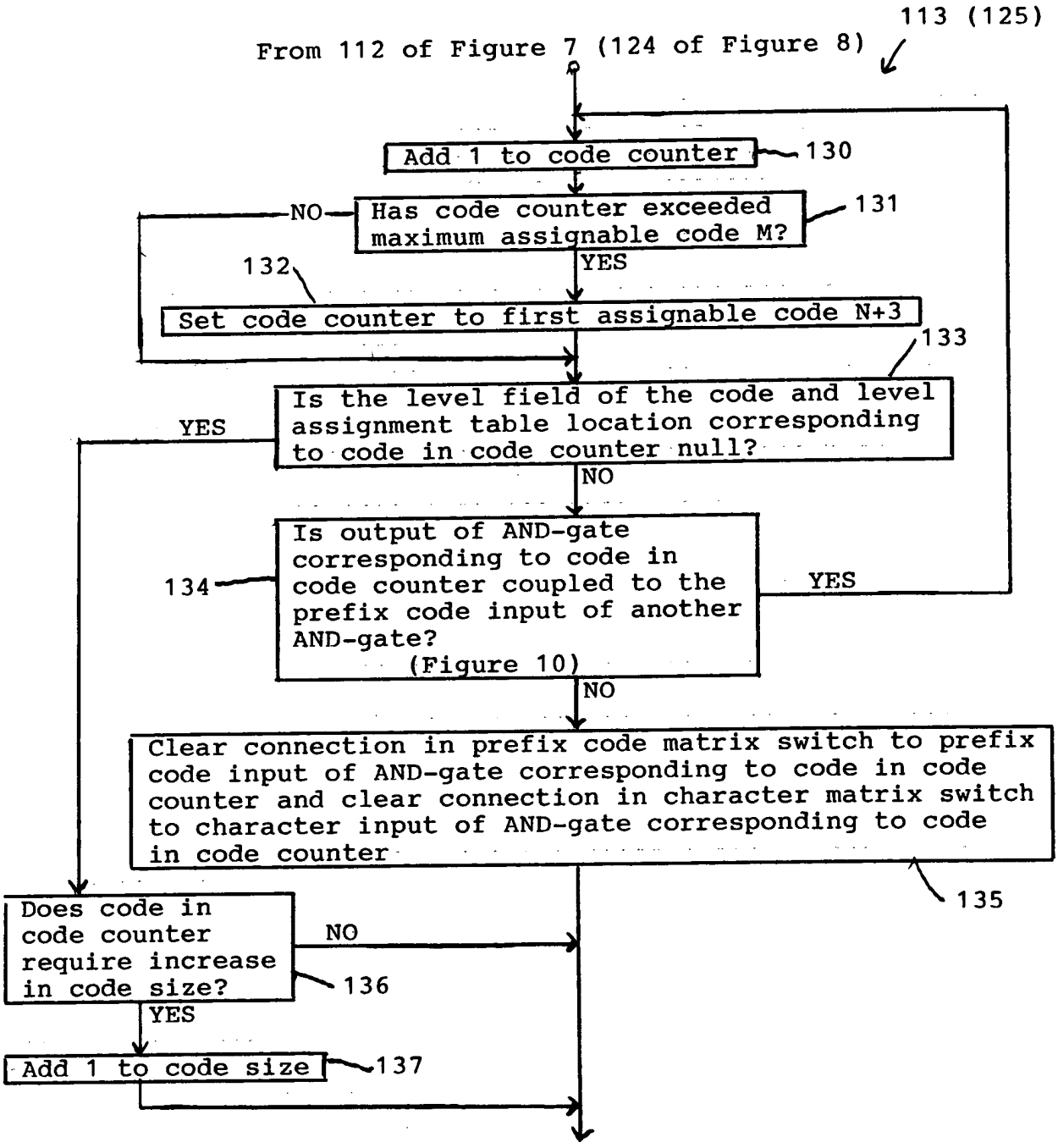

113 (125)
From 112 of Figure 7 (124 of Figure 8)
Add 1 to code counter
130
NO
Has code counter exceeded maximum assignable code M?
131
YES
132
Set code counter to first assignable code N+3
133
Is the level field of the code and level assignment table location corresponding to code in code counter null?
YES
NO
Is output of AND-gate corresponding to code in code counter coupled to the prefix code input of another AND-gate?
(Figure 10)
134
YES
NO
Clear connection in prefix code matrix switch to prefix code input of AND-gate corresponding to code in code counter and clear connection in character matrix switch to character input of AND-gate corresponding to code in code counter
135
Does code in code counter require increase in code size?
NO
136
YES
Add 1 to code size
137
To 114 of Figure 7 (126 of Figure 8)

FIGURE 9

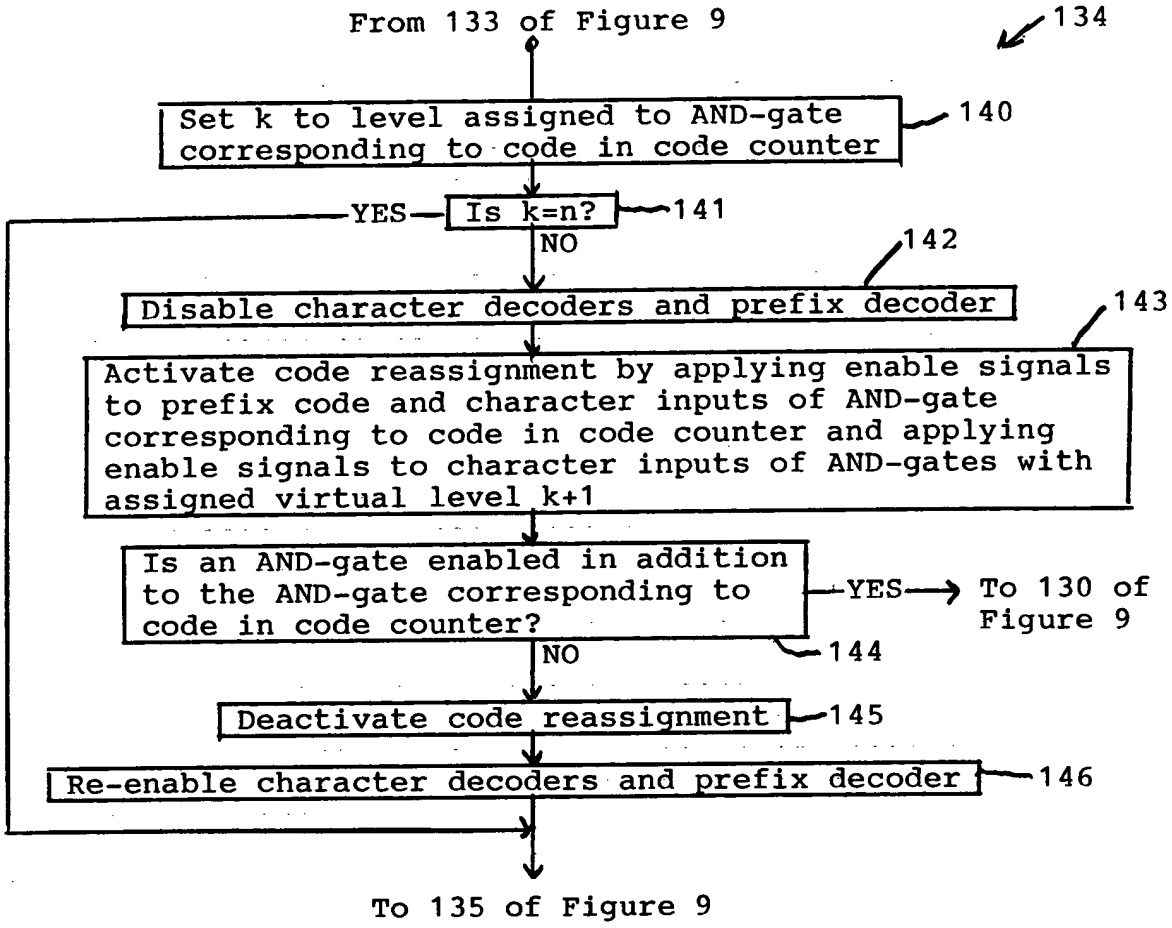

From 133 of Figure 9
134
Set k to level assigned to AND-gate corresponding to code in code counter
140
Is k=n?
141
YES
NO
142
Disable character decoders and prefix decoder
143
Activate code reassignment by applying enable signals to prefix code and character inputs of AND-gate corresponding to code in code counter and applying enable signals to character inputs of AND-gates with assigned virtual level k+1
Is an AND-gate enabled in addition to the AND-gate corresponding to code in code counter?
YES
To 130 of Figure 9
144
NO
Deactivate code reassignment
145
Re-enable character decoders and prefix decoder
146
To 135 of Figure 9

FIGURE 10